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| 09/839,163 | 04/23/2001 | Yoshio Oowaki | HITA.0050 | 4876 |

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| EXAMINER |
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SHAPIRO, LEONID

| ART UNIT | PAPER NUMBER |
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2673

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/839,163 | Applicant(s) OOWAKI ET AL. | |
| | Examiner Leonid Shapiro | Art Unit 2673 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-13 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-13 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of the claims 1-4: "wherein the display control device transmits to said output terminal being not connected to the drain lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines " and the limitation of the claims 7, 10: "scheduled to receive display datum immediately prior or subsequently to the transmitting of display datum to said output terminal being not connected to the drain signal lines" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-4, 7 and 10 include following limitation: "the display control device transmits to said output terminal being not connected to the

drain lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines “.

It is not clear, is the same level or voltage or different level or voltage transmitted to the output terminal being not connected to the drain lines?

Notice, that according to Figs. 6B and 12B different level or voltage (datum) transmitted to the output terminal being not connected to the drain lines, which is the same as for connected terminals.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7-12, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin (US Patent No. 6, 462, 727 B2) in view of Takahara et al. (JP No. 04-168417) and Kim et al. (US Patent No. 6,067,063).

As to claim 1, as best understood by examiner, Shin teaches a liquid crystal display device, comprising: a liquid crystal display element with plurality of drain signal (data) lines (See Fig. 2, items 15, 24, Col. 1, Lines 36-45), a plurality of driving circuits including a first driving circuit and a second driving circuit, each of the driving circuits having a plurality of output terminals (See Fig 7, items 240, 250, 270, 280, 290, Col. 5, Lines 28-53); a display control device transmitting display data alternately to one of the

output terminals of the first driving circuit and to one of the output terminals of the second driving circuit which is arranged next to the first driving circuit (See Fig. 7, items 200, 220, Col. 5, Lines 28-53).

Shin does not teach at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines and each of the remaining output terminal being connected to one of the drain signal lines.

Takahara et al. teaches at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines (See Drawing 2, item 25) and to skip unconnected pins by generating start pulses for each IC with clock pulses (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Takahara et al. into Shin system in order to use the same driving circuit for a LCD panel when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups (See from page 2, last line to page 3, line 3 in Takahara et al).

Shin and Takahara et al. do not teach the display control device transmits to output terminal being not connected to the drain signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines.

Kim et al. teaches the display control device transmits to output terminal signal lines a display datum being transmitted prior or subsequently to an output terminal

being connected to one of drain signal lines (See Fig. 5, items Vi, Ui, Col.5, Lines 26-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Kim et al. into Takahara et al. and Shin system in order to viewing characteristics of LCD (See Col. 2, Lines 38-40 in Kim et al. reference).

As to claim 2, as best understood by examiner, Shin teaches a display device, comprising: a display element with plurality of drain signal (data) lines (See Figs. 2, 7, items 15, 24, Col. 1, Lines 36-45), a plurality of driving circuits including a first driving circuit and a second driving circuit, each of the driving circuits having a plurality of output terminals (See Fig 7, items 240, 250, 270, 280, 290, Col. 5, Lines 28-53); a display control device transmitting display data alternately to one of the output terminals of the first driving circuit and to one of the output terminals of the second driving circuit which is arranged next to the first driving circuit (See Fig. 7, items 200, 220, Col. 5, Lines 28-53).

Shin does not teach at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines and each of the remaining output terminal being connected to one of the drain signal lines.

Takahara et al. teaches at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines (See Drawing 2, item 25) and to skip unconnected pins by generating start pulses for each IC with clock pulses (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Takahara et al. into Shin system in order to use the same driving circuit for a LCD panel when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups (See from page 2, last line to page 3, line 3 in Takahara et al).

Shin and Takahara et al. do not teach the display control device transmits to output terminal being not connected to the drain signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines.

Kim et al. teaches the display control device transmits to output terminal signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines (See Fig. 5, items Vi, Ui, Col.5, Lines 26-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Kim et al. into Takahara et al. and Shin system in order to viewing characteristics of LCD (See Col. 2, Lines 38-40 in Kim et al. reference).

As to claim 3, as best understood by examiner, Shin teaches a liquid crystal display device, comprising: a liquid crystal display element with plurality of drain signal (data) lines (See Figs. 2, 7, items 15, 24, Col. 1, Lines 36-45), a plurality of driving circuits including at least one odd numbered driving circuit and at least one even numbered driving circuit, each of the driving circuits having a plurality of output terminals (See Fig 7, items 240, 250, 270, 280, 290, Col. 5, Lines 28-53); a display

control device transmitting display data alternately to one of the output terminals of even driving circuit and to one of the output terminals of the second driving circuit which is arranged next to odd driving circuit (See Fig. 7, items 200, 220, Col. 5, Lines 28-53).

Shin does not teach at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines and each of the remaining output terminal being connected to one of the drain signal lines.

Takahara et al. teaches at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines (See Drawing 2, item 25) and to skip unconnected pins by generating start pulses for each IC with clock pulses (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Takahara et al. into Shin system in order to use the same driving circuit for a LCD panel when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups (See from page 2, last line to page 3, line 3 in Takahara et al).

Shin and Takahara et al. do not teach the display control device transmits to output terminal being not connected to the drain signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines.

Kim et al. teaches the display control device transmits to output terminal signal lines a display datum being transmitted prior or subsequently to an output terminal

being connected to one of drain signal lines (See Fig. 5, items Vi, Ui, Col.5, Lines 26-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Kim et al. into Takahara et al. and Shin system in order to viewing characteristics of LCD (See Col. 2, Lines 38-40 in Kim et al. reference).

As to claim 4, as best understood by examiner, Shin teaches a display device, comprising: a display element with plurality of drain signal (data) lines (See Figs. 2, 7, items 15, 24, Col. 1, Lines 36-45), a plurality of driving circuits including at least one odd numbered driving circuit and at least one even numbered driving circuit, each of the driving circuits having a plurality of output terminals (See Fig 7, items 240, 250, 270, 280, 290, Col. 5, Lines 28-53); a display control device transmitting display data alternately to one of the output terminals of odd numbered driving circuit and to one of the output terminals of even numbered driving circuit which is arranged next to the first driving circuit (See Fig. 7, items 200, 220, Col. 5, Lines 28-53).

Shin does not teach at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines and each of the remaining output terminal being connected to one of the drain signal lines.

Takahara et al. teaches at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines (See Drawing 2, item 25) and to skip unconnected pins by generating start pulses for each IC with clock pulses (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Takahara et al. into Shin system in order to use the same driving circuit for a LCD panel when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups (See from page 2, last line to page 3, line 3 in Takahara et al).

Shin and Takahara et al. do not teach the display control device transmits to output terminal being not connected to the drain signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines.

Kim et al. teaches the display control device transmits to output terminal signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines (See Fig. 5, items Vi, Ui, Col.5, Lines 26-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Kim et al. into Takahara et al. and Shin system in order to viewing characteristics of LCD (See Col. 2, Lines 38-40 in Kim et al. reference).

As to claim 7, as best understood by examiner, Shin teaches a liquid crystal display device, comprising: a liquid crystal display element with plurality of drain signal (data) lines (See Figs. 2, 7, items 15, 24, Col. 1, Lines 36-45), a plurality of driving circuits including at least one odd numbered driving circuit and at least one even numbered driving circuit, each of the driving circuits having a plurality of output terminals (See Fig 7, items 240, 250, 270, 280, 290, Col. 5, Lines 28-53); a display

control device transmitting display data alternately to one of the output terminals of odd numbered driving circuit and to one of the output terminals of even numbered driving circuit which is arranged next to the first driving circuit (See Fig. 7, items 200, 220, Col. 5, Lines 28-53), wherein the display control device has a first storing means for storing display data for odd numbered driving circuit (See Fig. 7, item 230a, Col. 5, Line 45) which are inputted externally (See Fig. 7, items C, D) and a second storing means for storing display data for even numbered driving circuit (See Fig. 7, item 230b, Col. 5, Line 49) which are inputted externally (See Fig. 7, items C, D), wherein the display control device reads out the display data from the first storing means and second storing means alternately to transmit to plurality output terminals being connected to one of the drain signal lines through plurality of the driving circuits (See Figs. 7-8, items 230a-230b, 240, 250, from Col. 5, line 54 to Col. 6, line 17); wherein before transmitting a display datum to output terminal to the drain signal lines, the display control devices reads out from one of the first and second storing means a display datum and then repeatedly transmits display datum to all connected and not connected (all) to the drain signal lines (See Figs. 7-8, items 230a-230b, 240, 250, from Col. 5, line 54 to Col. 6, line 17).

Shin does not teach at least one of numbered driving circuits has at least one output terminal not being connected to the drain signal lines and each of the remaining output terminal being connected to one of the drain signal lines.

Takahara et al. teaches at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines (See Drawing 2,

item 25) and to skip unconnected pins by generating start pulses for each IC with clock pulses (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Takahara et al. into Shin system in order to use the same driving circuit for a LCD panel when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups (See from page 2, last line to page 3, line 3 in Takahara et al).

Shin and Takahara et al. do not teach scheduled to receive display datum immediately prior or subsequently to the transmitting of datum to output terminal being not connected to the drain signal lines.

Kim et al. teaches the display control device transmits to output terminal signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines (See Fig. 5, items Vi, Ui, Col.5, Lines 26-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Kim et al. into Takahara et al. and Shin system in order to viewing characteristics of LCD (See Col. 2, Lines 38-40 in Kim et al. reference).

As to claim 10, as best understood by examiner, Shin teaches a display device, comprising: a display element with plurality of drain signal (data) lines (See Figs. 2, 7, items 15, 24, Col. 1, Lines 36-45), a plurality of driving circuits including at least one odd numbered driving circuit and at least one even numbered driving circuit, each of the

driving circuits having a plurality of output terminals (See Fig 7, items 240, 250, 270, 280, 290, Col. 5, Lines 28-53); a display control device transmitting display data alternately to one of the output terminals of odd numbered driving circuit and to one of the output terminals of even numbered driving circuit which is arranged next to the first driving circuit (See Fig. 7, items 200, 220, Col. 5, Lines 28-53), wherein the display control device has a first storing means for storing display data for odd numbered driving circuit (See Fig. 7, item 230a, Col. 5, Line 45) which are inputted externally (See Fig. 7, items C, D) and a second storing means for storing display data for even numbered driving circuit (See Fig. 7, item 230b, Col. 5, Line 49) which are inputted externally (See Fig. 7, items C, D), wherein the display control device reads out the display data from the first storing means and second storing means alternately to transmit to plurality output terminals being connected to one of the drain signal lines through plurality of the driving circuits (See Figs. 7-8, items 230a-230b, 240, 250, from Col. 5, line 54 to Col. 6, line 17); wherein before transmitting a display datum to output terminal to the drain signal lines, the display control devices reads out from one of the first and second storing means a display datum and then repeatedly transmits display datum to all connected and not connected (all) to the drain signal lines (See Figs. 7-8, items 230a-230b, 240, 250, from Col. 5, line 54 to Col. 6, line 17).

Shin does not teach at least one of numbered driving circuits has at least one output terminal not being connected to the drain signal lines and each of the remaining output terminal being connected to one of the drain signal lines.

Takahara et al. teaches at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines (See Drawing 2, item 25) and to skip unconnected pins by generating start pulses for each IC with clock pulses (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Takahara et al. into Shin system in order to use the same driving circuit for a LCD panel when the output bit number of a driver IC is larger than the circuit number of the divided electrode groups (See from page 2, last line to page 3, line 3 in Takahara et al).

Shin and Takahara et al. do not teach scheduled to receive display datum immediately prior or subsequently to the transmitting of datum to output terminal being not connected to the drain signal lines.

Kim et al. teaches the display control device transmits to output terminal signal lines a display datum being transmitted prior or subsequently to an output terminal being connected to one of drain signal lines (See Fig. 5, items Vi, Ui, Col.5, Lines 26-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Kim et al. into Takahara et al. and Shin system in order to viewing characteristics of LCD (See Col. 2, Lines 38-40 in Kim et al. reference).

As to claims 8-9, 11-12 Takahara et al. teaches to detect a timing for transmitting a display datum to be transmitted to the output terminal being not connected to the drain

lines (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4) and Shin teaches to transmit a display datum being read out from either of the first and second storing means as the display datum to be transmitted to the output terminal not being connected to the drain lines (See Figs. 7-8, items 230a-230b, 240, 250, from Col. 5, line 54 to Col. 6, line 17).

As to claims 18-19, Shin teaches display control device transmits datum to the output control terminal through driving circuits display datum (See Figs. 7-8, items 230a-230b, 240, 250, from Col. 5, line 54 to Col. 6, line 17).

Shin does not teach the display control device transmits to output terminal being not connected to the drain, signal lines display datum being transmitted prior or subsequently to an output terminal being connected to one of the drain signal lines.

Takahara et al. teaches at least one of first and second driving circuits has at least one output terminal not being connected to the drain signal lines (See Drawing 2, item 25) and to skip unconnected pins by generating start pulses for each IC with clock pulses (See Drawings 2-3, items 24-25, ST1, ST2, ..., from page 9, Line 3 to page 10, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to use start and clock pulses as shown by Takahara et al. as input to Shin display control device to transmit to output terminal being not connected to the drain lines a display datum having a same level as that of display datum being transmitted prior or subsequently to an output terminal being connected to one of the drain signal lines in order to use the same driving circuit for a LCD panel when the output bit number

of a driver IC is larger than the circuit number of the divided electrode groups (See from page 2, last line to page 3, line 3 in Takahara et al).

Response to Amendment

4. Applicant's arguments filed on 10-21-04 with respect to claims 1-4, 7-13, 17-19 have been considered but are moot in view of the new ground(s) of rejection.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

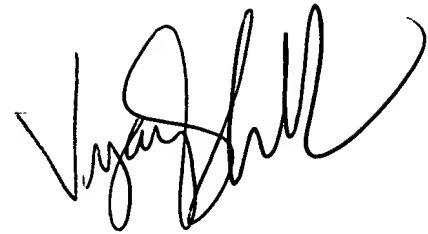
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02.09.05

A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a stylized, cursive script.

VIJAY SHANKAR
PRIMARY EXAMINER